

REMARKS

I. PRELIMINARY REMARKS

Claims 1, 3 and 6 have been amended. No claims have been canceled. Claims 21-24 have been added. Claims 1-24 remain in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

II. BRIEF DESCRIPTION OF AN EXEMPLARY EMBODIMENT

The present inventions, as defined by the claims, are directed generally to sound processors and to cochlear implant systems that include sound processors. Referring to Figure 3, which is reproduced below, a cochlear implant system 10' in accordance with one exemplary embodiment includes an implantable stimulator 12 and an external sound processor 50. The external sound processor 50 includes a coil 22 for transferring stimulation signals and power signals to the implantable stimulator 12. A power source 60 is permanently integrated into the external sound processor 50. To that end, in those instances where the permanently integrated power source 60 is rechargeable, the sound processor 50 may be provided with a coil 56 that receives power from an external charging source and recharges the power source. Alternatively, as illustrated in Figure 6, the permanently integrated power source 60 may receive recharging power by way of electrical contacts 61 and 62 that are carried on the surface or, or embedded within, the sound processor case.

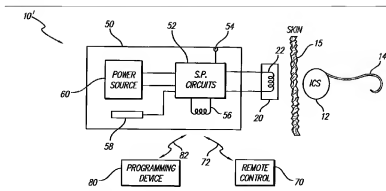


Figure 3 of the Present Application

There are a number of advantages associated with such sound processors and cochlear implant systems. For example, because the power source is permanently integrated into the present sound processor, the user does not have to carry and/or replace small sound processor batteries, as is the case with conventional sound processors. The present sound processors will also typically be smaller and have fewer components (i.e. no door, latch and/or electrical connectors for a removable battery) than sound processors with removable batteries. [See, e.g., paragraphs 0012-0016 of the present application.]

III. PRIOR ART REJECTIONS

A. The Rejections

Claims 1, 2 and 9 have been rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,603,726 to Schulman ("the Schulman patent"). Claims 1-4, 6, 7 and 9 have been rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 4,532,930 to Crosby ("the Crosby patent"). Claims 5, 8 and 10-20 have been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Crosby patent and U.S. Pat. Pub. No. 2002/0076071 naming Single ("the Single publication"). The rejections under 35 U.S.C. §§ 102 and 103 are respectfully traversed with respect to the claims as amended above. Reconsideration thereof is respectfully requested.

B. The Cited References

The Schulman patent discloses a cochlear implant system including an implantable stimulator 12 and an external wearable processor 16. [Figure 1.] The external processor 16, which is powered by a battery 38, includes an antenna 20 for transferring data and power to the implantable stimulator 12. [Column 4, lines 24-33; and column 5, lines 12-31.]

The Crosby patent discloses a cochlear implant system including an implantable receiver-stimulator 22 and an external wearable speech processor 29. [Figure 3.] The

implantable receiver-stimulator 22 is provided with a receiving coil 41 for receiving information and power, and the external processor 29 is provided with a coil 40 for transferring data and power to the implantable receiver-stimulator 22. [Figure 5.] The external processor 29 is powered by three removable AA batteries located within structure 30. [Column 9, lines 34 and 35; and column 46, lines 65-67.]

The Single publication discloses a battery arrangement for a totally implantable cochlear implant system.

C. Discussion Concerning Claims 1-5

Independent claim 1 is directed to a sound processor for use with an implantable cochlear stimulator. The claimed sound processor comprises a combination of elements including, *inter alia*, “a headpiece ... adapted to transfer the stimulation signal and the power signal from the sound processing circuit to the implantable cochlear stimulator” and “a power source ***permanently integrated into*** the sound processor and adapted to provide operating power for the sound processing circuit and implantable cochlear stimulator.” The respective combinations defined by claims 2-5 include, *inter alia*, the elements recited in claim 1.

The Schulman patent fails to teach or suggest the claimed combinations. For example, the Schulman patent does not even remotely suggest that the battery 38 is permanently integrated into the external processor 16. The Schulman patent merely indicates that it is important to minimize power consumption. [See, e.g. column 7, line 46-63.] The Schulman patent is, on the other hand, silent with respect to the case for the external processor 16 as well as the relationship between the battery and the case. Applicant respectfully submits, therefore, that claims 1 and 2 are patentable thereover and that the rejection of claims 1 and 2 under 35 U.S.C. § 102 should be withdrawn.

The Crosby patent also fails to teach or suggest the claimed combinations. For example, the Crosby batteries are not permanently integrated into the speech processor 29. To the contrary, the speech processor 29 is specifically configured to allow the batteries to be replaced. [Column 46, lines 65-67.] Applicant respectfully submits,

therefore, that claims 1-4 are patentable thereover and that the rejection of claims 1-4 under 35 U.S.C. § 102 should be withdrawn.

Turning to claim 5, applicant respectfully submits that the Single publication, which is directed to a totally implantable cochlear implant system, fails to remedy the aforementioned deficiencies in the Crosby patent. Claim 5 is, therefore, patentable for at least the same reasons as independent claim 1 and the rejection of claim 5 under 35 U.S.C. § 103 should also be withdrawn.

D. Discussion Concerning Claims 6-8

Independent claim 6 is directed to a sound processor for use with an implantable cochlear stimulator. The claimed sound processor comprises a combination of elements including, *inter alia*, “a sound processing circuit,” “a headpiece connected to the sound processing circuit, the headpiece adapted to transfer the stimulation signal and the power signal from the sound processing circuit to the implantable cochlear stimulator,” **“a replenishable power source integrally housed within the sound processor** and adapted to provide operating power for the sound processing circuit and implantable cochlear stimulator” and **“a coil integrally included within the sound processor** and coupled to the sound processing circuit and the replenishable power source, the coil **adapted to** selectively receive power from an external charging source and **recharge the replenishable power source** when the sound processor is in proximity to the external charging source.” The respective combinations defined by claims 7 and 8 include, *inter alia*, the elements recited in claim 6.

The Crosby patent fails to teach or suggest the claimed combinations. For example, the Crosby patent does not indicate that the AA batteries are integrally housed within the speech processor 29 or that the AA batteries replenishable. Given this lack of an integral and replenishable power source, it is not surprising that the Crosby external wearable speech processor 29 also lacks a coil integrally included within the speech processor 29, which is coupled to the associated sound processing circuit and to the speech processor power source, that is adapted to receive power from an external

charging source and recharge the power source when the sound processor is in proximity to the external charging source.

Faced with this unambiguous shortcoming in the Crosby patent, the Office Action appears to have taken the position that the Crosby implantable receiver-stimulator 22 correspond to the claimed "sound processor" and that the implantable receiver-stimulator coil 41 (or coil 5 in Figure 2) corresponds to the claimed "***coil integrally included within the sound processor*** and ... ***adapted to*** selectively receive power from an external charging source and ***recharge*** the replenishable power source when the sound processor is in proximity to the external charging source." [Office Action at pages 4 and 5.] Applicant respectfully submits that this interpretation of claim 6 is unreasonable because it conflicts with both the present application and the Crosby patent. The Crosby implantable receiver-stimulator 22 is not a "sound processor." Instead, as the name clearly indicates, it is the implantable portion of the Crosby system that receives information and power from the Crosby external speech processor 29.

As the Crosby patent fails to teach or suggest each and every element of the combination recited in independent claim 6, applicant respectfully submits that claims 6 and 7 are patentable thereover and that the rejection of claims 6 and 7 under 35 U.S.C. § 102 should be withdrawn.

Turning to claim 8, applicant respectfully submits that the Single publication, which is directed to a totally implantable cochlear implant system, fails to remedy the aforementioned deficiencies in the Crosby patent. Claim 8 is, therefore, patentable for at least the same reasons as independent claim 6 and the rejection of claim 8 under 35 U.S.C. § 103 should also be withdrawn.

E. Discussion Concerning Claims 9-16

Independent claim 9 is directed to a cochlear implant system that comprises "an implantable portion," "an external portion" and "a remote control unit." The external portion includes "a headpiece" and "a sound processor [that] comprises sound processing circuits, a battery and a coil ***integrally housed within a closed case.***" The

respective combinations defined by claims 10-16 include, *inter alia*, the elements recited in claim 9.

The Schulman patent fails to teach or suggest the combination defined by claim 9. For example, the Schulman patent does not even remotely suggest that the battery 38 is integrally housed within a closed case. The Schulman patent indicates that it is important to minimize power consumption. [See, e.g. column 7, line 46-63.] The Schulman patent is, however, silent with respect to the case for the external processor 16 and the relationship between the battery and the case. Applicant respectfully submits, therefore, that claim 9 is patentable thereover and that the rejection of claim 9 under 35 U.S.C. § 102 should be withdrawn.

The Crosby patent also fails to teach or suggest the combination defined by claim 9. For example, the Crosby patent discloses an implantable receiver-stimulator 22 as well as a wearable external speech processor 29 with three AA batteries. In contrast to the invention defined by independent claim 9, however, the Crosby batteries are not ***integrally housed*** within the same closed case as the sound processing circuits and coil. The Crosby external speech processor 29 is, to the contrary, specifically configured such that the batteries are externally accessible. [Column 46, lines 65-67.] Applicant respectfully submits that one of skill in the art would understand that such external access is provided for purposes of removal and replacement and that removable batteries are not "integrally housed within a closed case."

Turning to claims 10-16, applicant respectfully submits that the Single publication, which is directed to a totally implantable cochlear implant system, fails to remedy the aforementioned deficiencies in the Crosby patent. Claim 10-16 are, therefore, patentable for at least the same reasons as independent claim 9 and the rejection of claims 10-16 under 35 U.S.C. § 103 should also be withdrawn.

F. Discussion Concerning Claims 17-20

Independent claim 17 is directed to a cochlear implant system that comprises "an implantable portion," "an external portion," "a remote control unit" and "a base station." The external portion includes "a headpiece" and "a sound processor [with] sound

processing circuits, an antenna coil, a **rechargeable battery integrally housed within a closed case**, and **electrical contacts embedded within or carried on a surface of the closed case** that are in electrical contact with the rechargeable battery.” The respective combinations defined by claims 18-20 include, *inter alia*, the elements recited in claim 17.

The cited references fail to teach or suggest the claimed combinations. For example, the Crosby patent discloses an implantable receiver-stimulator 22 as well as a wearable external speech processor 29 with three AA batteries. In contrast to the invention defined by independent claim 17, however, the Crosby batteries are not rechargeable and are not housed within the same closed case as the sound processing circuits and antenna coil. The Crosby external speech processor 29 is, to the contrary, specifically configured such that the AA batteries are externally accessible. [Column 46, lines 65-67.] Applicant respectfully submits that one of skill in the art would understand that such external access is provided for purposes of removal and replacement and that removable batteries are not “integrally housed within a closed case.” The Crosby patent also fails to disclose the use of electrical contacts that are embedded within or carried on a surface of the Crosby speech processor case.

The Single publication, which is directed to a totally implantable cochlear implant system, would not have suggest modifications to the Crosby external speech processor that would have resulted in the presently claimed inventions.

Accordingly, even assuming for the sake of argument that there was some reason to combine their teachings in the manner proposed in the Office Action, the Crosby patent and Single publication fail to establish a *prima facie* case of obviousness with respect to independent claim 17. The rejection of claims 17-20 under 35 U.S.C. § 103 should, therefore, be withdrawn.

IV. NEWLY PRESENTED CLAIMS 21-24

Newly presented claim 21 depends from independent claim 1 and is patentable for at least the same reasons as claim 1.

Newly presented claims 22 and 23 depend from independent claim 9 and are patentable for at least the same reasons as claim 9.

Newly presented claim 24 depends from independent claim 17 and is patentable for at least the same reasons as claim 17.

V. CLOSING REMARKS

In view of the foregoing, it is respectfully submitted that the claims in the application are in condition for allowance. Reexamination and reconsideration of the application, as amended, are respectfully requested. Allowance of the claims at an early date is courteously solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is respectfully requested to call applicant's undersigned representative at (310) 563-1458 to discuss the steps necessary for placing the application in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-0638. Should such fees be associated with an extension of time, applicant respectfully requests that this paper be considered a petition therefor.

Respectfully submitted,

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Date

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